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EXAMINER
JACKSON, BLANE J

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,476	LOEB ET AL.	
	Examiner	Art Unit	
	Blane J. Jackson	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,13-25,28-44 and 46-76* is/are rejected.

7)☒ Claim(s) *9-12,26,27 and 45* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 52 is objected to because of the following informalities: claim 52 indicates dependence to claim 18 where claim 37 is expected in view of subsequent dependent claims. Consequently, the following rejection presumes claim 52 is dependent on claim 37. Appropriate correction is required.

Claims 37, 47, 37, 52, 56, 59 and 61 are objected to as comprising an indefinite format which suggests an independent or dependent claim. They are treated as dependent claims in the rejection to follow in view of the Fee Transmittal form filed 10 February 2004 that lists three independent claims (1, 18 and 65). Appropriate action is required.

Claim 33 is objected to as comprising the term "at least about" which is a relative phrase that renders the claim indefinite. It is expected that "of at least about 800 MHz" would be better amended to relate to a cellular band or other that is consistent with the Specification.

Claims 34 and 53 are objected to as comprising the term "at least about" which is a relative phrase that renders the claim indefinite. It is expected that "at least about 2.4 GHz" would be better amended to relate to a local area network or other that is consistent with the Specification.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Adjustable Segmented Power Amplifier.

Claim Rejections - 35 USC § 112

Claims 17 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 17 and 31, the term "substantially" is a relative term which renders the claim indefinite. The terms "size", "design" or "power efficiency" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Also, the repeated use the term "and/or" in claims 17 and 31 is a relative term which renders the claim indefinite where it is not clear whether to consider all, any subset or any one of the associated claim elements. The examiner suggests an amendment to change "and/or" to "or".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 13-25 and 28-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandt (US 6,538,515) with a view to Klaren et al. (US 2004/0095190).

As to claims 1 and 18, Brandt teaches an adjustable segmented amplifier comprising:

An adjustable stage comprising a plurality of independently selectable parallel amplifier segments (figures 2 and 4, column 2, line 63 to column 3, line 8, two, three or more coupled parallel amplifiers to comprise a power amplifier),

Each of said parallel amplifier segments having an input at said first common node and an output at a second common node (figure 2, common input node is the RF input and the common output node is RF Load (130)),

Wherein said adjustable stage is configured to provide an output signal in one of a plurality of power ranges corresponding to a number of selected parallel amplifier segments (column 2, line 63 to column 3, line 14),

Said output signal having minimum power efficiency when two or more of said parallel amplifier segments are selected (column 3, lines 14-33).

Brandt teaches a power amplifier with a plurality of parallel adjustable stages but is silent as to a first fixed (gain) stage configured to amplify an analog signal and provide a first amplified output at a first common node.

Klaren teaches a power amplifier (figure 1) comprising two parallel amplifiers (38 and 40) that are preceded by an amplifier driver stage (22) where both the driver and

power amplifiers are under bias control for gain control, paragraphs 0040-0045. Klaren, though primarily focused on methods to bypass the PA package, also demonstrates a fixed driver amplifier (132) to amplify an analog signal and provide a first amplified output at a common node, the node represented by the bandpass filter (134) prior to signal splitting at the quadrature hybrid (152), figure 7, paragraphs 0008 and 0015.

Since Klaren teaches an amplifier driver, bandpass filter and hybrid as known components to precede the actual parallel power amplifiers of a power amplifier package, it would have been obvious to one of ordinary skill in the art at the time of the invention to realize in the power amplifier package of Brandt the additional components of Klaren to meet design signal levels through the power amplifier package.

As to claim 6, Brandt teaches the adjustable amplifier of claim 1 wherein at lest one of said plurality of parallel amplifier segments is selected for operation (column 3, lines 14-23).

As to claim 7, Brandt teaches the adjustable amplifier of claim 6 wherein said at lest one selected parallel amplifier segment is selected for operation be applying a non-zero bias at a control terminal (figure 4, the transistors (304, 106 and 108), bipolar or FETs, would require a non zero bias for operation, column 2, lines 37-54).

As to claim 8, Brandt teaches the adjustable amplifier of claim 7 further comprising a bias generator configured to apply a bias to said control terminal (figures 1-4, various concepts for bias control requiring a generator).

As to claim 13, Brandt teaches the adjustable amplifier of claim 1 wherein an efficiency of said high-efficiency output power range is at least 50% of a maximum efficiency of said adjustable amplifier (figure 4, column 2, line 66 to column 3, line 33, one or some combination of a plurality of power transistors are disconnected from the power supply and re-biased via the DC Bias control).

As to claim 14, Brandt teaches the adjustable amplifier of claim 1 wherein the efficiency is at lest 60% of said maximum efficiency (figure 4, column 2, line 66 to column 3, line 33, one or some combination of a plurality of power transistors are turned off disconnecting a transistor from the power supply).

As to claim 15, Brandt modified teaches the adjustable amplifier of claim 1 wherein said fixed stage comprises a first bipolar transistor and each of said plurality of parallel amplifier segments comprises a second bipolar transistor (Brandt: figure 4, column 2, lines 37-44, the parallel transistors are FETs or bipolar, likewise consideration for the driver amplifier (22) as taught by Klaren: paragraph 0045).

As to claim 16, Brandt teaches the adjustable amplifier of claim 15 further comprising:

A first inductor in electrical communication between said first bipolar transistor and a first electric potential and

A second inductor in electrical communication between each of said second bipolar transistors and said first electric potential (figure 4, an individual RF choke in series with the switched power supply and each respective transistor).

As to claim 17, Brandt teaches the adjustable amplifier of claim 1 wherein each of said plurality of parallel amplifier segments has substantially the same size, design, gain function, output power and power efficiency characteristics as the others of said plurality of parallel amplifier segments (figure 4, column 2, line 63 to column 3, line 8).

As to claim 19, Brandt teaches the circuit of claim 18 wherein said means for providing said adjustably amplified output comprises a plurality of parallel independently selectable means for further amplifying said first amplified signal, each of said parallel means for further amplifying having an input at a first common node and an output at a second common node (figures 2 and 4, column 3, lines 14-33, note each power transistor is disconnected from the power supply and additionally biased to an on or off state, parallel power transistors (106, 108 and 304), with common input node via a series capacitor and a common output node (130) via a series inductor for each parallel transistor circuit).

As to claim 20, Brandt teaches the circuit of claim 19 wherein said adjustably amplified output has one of a plurality of power ranges corresponding to a number of selected means for further amplifying said output signal having a minimum power efficiency when two or more of said means for further amplifying are selected (column 2, line 63 to column 3, line 13).

As to claim 21, Brandt teaches the circuit of claim 20 having a power efficiency of at lest 50% of a maximum efficiency of said circuit (figure 4, column 2, line 66 to column 3, line 33, one or some combination of a plurality of power transistors are disconnected from the power supply and re-biased via the DC Bias control).

As to claim 22, Brandt teaches the circuit of claim 19 wherein each of said means for further amplifying comprises a transistor having a control terminal and said circuit further comprises a first means for coupling said control terminal of at least one of said transistors to a first bias (figure 2, a high bias and switch (112) to disconnect the first power transistor, a normal DC bias and closed switch (114) to operate a second power transistor).

As to claim 23, Klaren of Brandt modified teaches the circuit of claim 22 wherein each of said means for further amplifying further comprises a means for filtering said first amplified signal in electrical communication with said first common node and said control terminal of said transistor (figures 6 and 7, paragraph 0008, a bandpass filter

(134) in series between the driver amplifier (132) and subsequent power transistor package).

As to claim 24, Brandt teaches the circuit of claim 19 wherein each of said means for further amplifying comprises a transistor having a control terminal and a first means for coupling said control terminal of said transistor to a bias signal (figures 2 and 4, control terminal comprising the gate of each power transistor).

As to claim 25, Brandt teaches the circuit of claim 24 further comprising a means for providing said bias signal (figure 2, Bias High or DC Bias Normal denotes circuits to generate bias control).

As to claim 28, Brandt teaches the circuit of claim 19 wherein at least one of said plurality of means for further amplifying is selected for operation (column 3, lines 14-33).

As to claim 29, Brandt teaches the circuit of claim 19 wherein said means for amplifying comprises a first bipolar transistor and each of said means for further amplifying comprises a second bipolar transistor (figure 2, column 2, lines 37-44, bipolar junction or FET transistors).

As to claim 30, Brandt teaches the circuit of claim 29 further comprising:

A first means for coupling an output matching network to an output of said means for amplifying (figures 2 and 5, column 3, lines 14-37, the output impedance of each power transistor is considered whether biased on or off in relation to each series output inductor and shunt capacitor (118) to efficiently match the RF load (130). Note the emphasis of the Brandt patent is concerned with impedance matching the power amplifier to the output load with different selected output power, however, as the subject matter in previous claims, power control is also being accomplished with the disconnection and bias control of each power transistor).

As to claim 31, Brandt teaches the adjustable amplifier of claim 19 wherein each of said plurality of parallel amplifier segments has substantially the same size, design, gain function, output power and power efficiency characteristics as the others of said plurality of parallel amplifier segments (figure 4, column 2, line 63 to column 3, line 8).

As to claims 32 and 35, Brandt teaches an integrated circuit of claim 1 comprising an adjustable amplifier and a transmitter or transceiver communicatively coupled to said adjustable amplifier, said transmitter being configure to transmit said analog signal to said adjustable amplifier (column 1, lines 14-28, an adjustable power amplifier for application in cellular systems).

As to claim 33, Brandt teaches the integrated circuit of claim 32 wherein said analog signal has a frequency *of at least about 800 MHz* (column 1, lines 14-24, application of the power amplifier to transmitters used in GSM like systems).

As to claims 34 and 36, Brandt modified teaches the integrated circuit of claim 32 wherein said analog signal has a frequency *of GSM systems* but is silent as to *at least about 2.4 GHz* or the transceiver is compliant with a standard selected from IEEEE 802.11 and 802.16. However Brandt teaches the power amplifier is applicable to GSM like systems (column 1, lines 10-24) therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that Brandt's general intention of application of the power amplifier to a wireless system includes any other specific public and private cellular systems as well as LAN networks.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandt (US 6,538,515) and Klaren et al. (US 2004/0095190) in view of Gillis (US 6,711,392).

As to claims 2, 4 and 5, Brandt teaches the adjustable amplifier of claim 1 wherein each of said parallel amplifier segments comprises a transistor having a control terminal (figures 2 and 4, DC bias control) and each adjustable stage comprises a *resistor* in electrical communication with said control terminal of at least one of said transistors (figure 4, the resistors R3, R1 and R2 provide the bias control signal to the

respective control gate terminal of transistors (304, 106 and 108)). Brandt is silent as to said adjustable stage comprises a first inductor (rather than a resistor).

Gillis also teaches a balance or parallel power amplifier comprising two parallel transistors (figure 4, (37 and 38)). Gillis further discloses a bias circuit (17), figure 1, to generate bias voltages which are applied via a radio frequency inductor choke (23) to the control terminal or base of the power transistors where one of the two power transistors of figure 4 is shown in the example of figure 1, column 2, lines 33-45.

Since Brandt modified and Gillis teach similar power amplifier circuits, it would have been obvious to one of ordinary skill in the art at the time of the invention to exchange the bias resistor of Brandt of Brandt modified for the inductor of Gillis to alternatively provide the control signal to the transistor control terminal without a voltage drop per design requirements.

As to claim 3, Brandt teaches the adjustable amplifier of claim 2 wherein each of said parallel amplifier segments further comprises a capacitor in electrical communication with said first common node and said control terminal of said transistor (figure 4, each power transistor input utilizes a series capacitor to pass the RF frequency but block the DC bias current).

Claims 37- 42 and 47-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandt (US 6,538,515) and Klaren et al. (US 2004/0095190) in view of Khorram (US 6,996,379).

As to claims 37 and 42, Brandt teaches a system for broadcasting an analog signal of the integrated circuit of claim 32 (figure 2) but does not teach a signal converter configured to provide a converted analog output signal from said output signal of said adjustable amplifier and a transmission antenna configured to broadcast said converted analog output signal.

Khorram teaches a linear high powered integrated circuit transmitter for application to wireless communication systems comprising a plurality of differential transconductance power amplifiers in parallel with a common output node coupled to a signal converter or balun (150) via a current to voltage circuit (144) to convert the differential output signal to a single ended RF signal to further couple to an antenna (86), figure 2 and 5, column 7, line 60 to column 8, line 26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brandt modified with the power amplifier of Khorram for a balanced transmitter system for wireless communication systems.

As to claim 38, Khorram of Brandt teaches the system of claim 37 wherein said signal converter comprises a transformer (figure 5, balun 150), column 8, lines 23-26).

As to claim 39, Khorram of Brandt modified teaches the system of claim 37 further comprising an output capacitor coupled to said second common node (figure 5, column 8, lines 18-27, current to voltage circuit (144)).

As to claim 40, Khorram of Brandt modified teaches the system of claim 37 further comprising an output inductor coupled to said second common node (figure 5, column 8, lines 18-27, current to voltage circuit (144)).

As to claim 41, Khorram of Brandt modified teaches the system of claim 40 further comprising an adjustable resistor coupled to said output inductor (figure 5, column 8, lines 18-27, current to voltage circuit (144)).

As to claim 47, Khorram of Brandt modified teaches a network comprising the system of claim 37 and a receiver in electromagnetic communication with said system (figure 1, column 3, lines 51-60, wireless communication system and figure 2, column 4, lines 17-61, radio (60)).

As to claim 48, Khorram of Brandt modified teaches the network of claim 47 further comprising a receiving antenna in communication with said receiver (figure 2, antenna (86), column 4, lines 47-61).

As to claims 49-51, Khorram of Brandt modified directly teaches a network comprising a plurality of the systems of claim 37 and a plurality of receiver each of said receivers being in communication with at least one of said systems (figure 1, column 3, lines 51-60).

As to claims 52 and 56, Khorram of Brandt modified teaches a system and an integrated circuit comprising the circuit of claim 37 and a means for transmitting said analog signal to said adjustable amplifier (figure 2, up-conversion module (82) coupled to PA (84)).

As to claim 53, Khorram of Brandt modified teaches the integrated circuit of claim 52 wherein said analog signal has a frequency of at least about 2.4 GHz (column 1, lines 11-31).

As to claim 54, Khorram of Brandt modified teaches a transceiver comprising the integrated circuit of claim 52 (figure 2).

As to claim 55, Khorram of Brandt modified teaches the transceiver of claim 54 wherein the transceiver is compliant with a stander selected from the group consisting of IEEE 802.11 and 802.16 (column 1, lines 11-31).

As to claim 57, Khorram of Brandt modified teaches the system of claim 56 wherein said means for providing comprises a pair of inductors in electromagnetic communication with each other (figure 5, balun 150)).

As to claim 58, Khorram of Brandt modified teaches the system of claim 56 wherein said output signal comprises a differential signal and said means for providing

is configured to convert said differential signal to a single-ended signal (figure 5, column 8, lines 18-26, balun (150) converts the differential output to a singe-ended RF signal).

As to claim 59, Khorram of Brandt modified teaches a network comprising the system of claim 56 and a means for receiving said amplified analog output signal in communication with said system (figure 2, antenna (86) and the receiver portion of radio (60)).

As to claim 60, Khorram of Brandt modified teaches the network of claim 59 further comprising a means for processing said amplified analog output signal received by said means for receiving wherein said means for processing is in communication with said means for receiving (figure 2, antenna (86) and the receiver portion of radio (60)).

As to claim 61, Khorram of Brandt modified teaches a network comprising a plurality of the systems of claim 56 and a plurality of means for receiving said amplified analog output signal each of said means for receiving being in communication with at least one of said systems (figure 1, column 1, lines 11-31).

As to claims 62-64, Khorram of Brandt modified teaches the network of claim 61 further comprising a plurality of means for processing said amplified analog output signal received by said means for receiving wherein each of said means for processing

is in communication with a unique one of said means for receiving (figure 1, a network including base stations, column 1, lines 26-47).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brandt (US 6,538,515), Klaren et al. (US 2004/0095190) and Khorram (US 6,996,379) in view of Endou et al. (US 5,602,508).

As to claim 43 with respect to claim 42, Brandt modified is silent as to the differential output signal comprising first and second output capacitors.

Endou teaches a differential amplifier with input and output transformers ((10) and (11)) to convert the differential amplifier for single ended input and output, figure 1. Endou also illustrates first and second output capacitors ((19) and (20)) respectively coupled to each line of the differential output signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to realize in the differential amplifier of Brandt modified the output capacitors of Endou to block amplifier bias currents but to pass the frequency of interest from the amplifier to the coupling transformer.

Claims 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandt (US 6,538,515), Klaren et al. (US 2004/0095190) and Khorram (US 6,996,379) in view of Davis (5,343,162).

As to claims 44 and 46 with respect to claim 42, Brandt modified is silent as to the differential output signal comprising first and second output inductors and a

differential output capacitor respectively coupled to each line of the differential output signal.

Davis teaches a differential amplifier comprising first and second output inductors (17) and a differential output capacitor (16) coupled to each line of the differential output signal, figure 1, column 2, lines 8-48. Davis further teaches two alternative outputs, a direct coupling (out 1) or a transformer (18) forming a resonant circuit with capacitor (16) for differential or single ended inductive output coupling.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brandt modified with the resonant output circuits of Davis such that the amplifier can maintain the Q of the tuned circuits in the output when saturated.

Claims 65-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghanadan et al. (US 6,639,463) in view of Klaren et al. (US 2004/0095190).

As to claim 65, Ghanadan teaches a method of amplifying an analog signal comprising the steps of:

Selecting a number of parallel amplifier segments for subsequent signal amplification (figure 2, column 4, lines 10-32, power amplifiers (26a-d) under control of control processor (42)).

Amplifying said amplified analog signal with said activated parallel selectable amplifier segments to generate an output signal in a unique output power range corresponding to the number of selected parallel amplifier segments (column 5, lines 11-60).

Ghanadan teaches a cellular base station including a radio (54) to provide an RF signal to the power amplifier package but is silent as to specific circuits that include amplifying said analog signal in a fixed amplifier stage.

Klaren teaches a power amplifier, with a bypass structure, comprising a fixed direct amplifier (132) coupled to the power amplifier (102) via a bandpass filter (134), paragraphs 0008 and 0015.

Since Klaren teaches an amplifier driver, bandpass filter and hybrid as known components to precede the actual parallel power amplifiers of a power amplifier package, it would have been obvious to one of ordinary skill in the art at the time of the invention to realize in the base station equipment of Ghanadan the additional components of Klaren to meet design signal levels through the power amplifier package.

As to claim 66, Ghanadan teaches the method of claim 65 wherein said selecting step comprises applying a bias to those amplifier segments to be selected (column 5, lines 11-31, adjust the bias voltage and/or source voltages to each amplifier).

As to claim 67, Ghanadan teaches the method of claim 65 further comprising the step of generating said bias (figure 2, column 4, lines 10-32, Control Processor (42)).

As to claim 68, Ghanadan teaches the method of claim 65 further comprising the step of generating the bias independently for each selected parallel amplifier segment

(figure 2, column 4, lines 10-32, controlling the operation of individual amplifier stages (26a-d)).

As to claim 69, Ghanadan teaches the method of claim 65 wherein a value of said bias corresponds to said number of selected amplifier segments (column 5, lines 32-46).

As to claim 70, Ghanadan teaches the method of claim 65 wherein said bias is generated from a programmable current and said method further comprises determining a value of said programmable current based on said number of selected amplifier segments (figure 2, column 5, lines 11-60, processing circuitry (42) provides control signals (52) to individual power amplifiers).

As to claim 71, Ghanadan teaches the method of claim 65 wherein said output signal has a minimum power efficiency when two or more of said parallel amplifier segments are selected (column 1, line 52 to column 2, line 3, efficiency of each selected amplifiers are controlled through bias at the gate voltage).

As to claim 72, Ghanadan teaches the method of claim 71 wherein said minimum power efficiency is at least 50% of a maximum efficiency of an amplifier comprising said fixed amplifier stage and said parallel amplifier segments (column 1, line 52 to column

2, line 3, efficiency of each selected amplifiers are controlled through bias at the gate voltage).

As to claim 73, Ghanadan teaches the method of claim 65 further comprising the step of matching a frequency of said output signal to an input of each of said parallel amplifier segments (column 5, lines 47-60).

As to claim 74, Ghanadan teaches the method of claim 65 further comprising the step of broadcasting said output signal (figure 2, application of the power amplifier in a cellular base station).

As to claim 75, Ghanadan teaches the method of claim 65 wherein said output signal has a minimum frequency of about 800 MHz (figure 2, column 1, lines 35-51, TDMA or CDMA system).

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghanadan et al. (US 6,639,463) and Klaren et al. (US 2004/0095190) in view of Khorram (US 6,996,279).

As to claim 67 with respect to claim 65, Ghanadan of Ghanadan modified teaches an adjustable power amplifier with application to wireless cellular networks (column 1, lines 35-51) but is silent as to compliant with a standard selected from the group consisting of IEE 801.11a,b,g,h,I and 802.16.

Khorram teaches an integrated power amplifier comprising a plurality of parallel differential amplifiers with application in devices used in a wireless cellular of local area network, figure 1, column 3, lines 50-60.

It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize the expansion of the application of the power amplifier of Ghanadan in the diverse networks of Khorram to meet operation efficiency requirements in all wireless networks.

Allowable Subject Matter

Claims 9-12, 26, 27 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hu (US 2004/0189399), Masahiro (US 2002/0005760), Sevic et al. (US 5,872,481), Sevic et al. (US 6,137,355) and Oskowsky et al. (US 2002/0008575).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J. Jackson whose telephone number is (571) 272-7890. The examiner can normally be reached on Monday through Friday, 9:00 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJJ

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